

Abstract Submitted
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Level lifetimes and the nuclear structure of $^{134,136}\text{Xe}$ from inelastic neutron scattering¹ E.E. PETERS, A. CHAKRABORTY, B.P. CRIDER, T.J. ROSS, S.F. ASHLEY, E. ELHAMI, A. KUMAR, S.H. LIU, M.T. MCELLISTREM, S. MUKHOPADHYAY, J.N. ORCE, F.M. PRADOS-ESTÉVEZ, S.W. YATES, Departments of Chemistry and Physics & Astronomy, University of Kentucky, Lexington, KY 40506, S.F. HICKS, Department of Physics, University of Dallas, Irving, TX 75062, USA — The level structures of $^{134,136}\text{Xe}$ were studied with the inelastic neutron scattering reaction followed by γ -ray detection. Highly enriched solid XeF_2 samples were used in the measurements. A number of level lifetimes were determined for the first time with the Doppler-shift attenuation method, and the low-lying excited states were characterized from this new spectroscopic information. In ^{134}Xe , the third excited state, a tentative 0^+ level, was verified. The 3^- octupole phonon has been confirmed, and the complete negative-parity multiplet resulting from the $\nu(1h_{11/2}2d_{3/2})$ configuration has been tentatively identified for the first time in the $N = 80$ isotones. In ^{136}Xe , a nucleus with a closed $N = 82$ neutron shell, several spins and parities of the states below 3 MeV in excitation energy have been firmly assigned for the first time, or have been re-assigned. New insights into the structures of these nuclei will be discussed.

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